BINARY SOLUTIONS

MAT 275
Calculation of Product of Odd Numbers from 1 to 19 in C++

contact@thebinarysolutionsllc.com

Introduction

This program calculates the product of odd numbers within the range from 1 to 19. It demonstrates the usage of a loop to iterate over an array of odd numbers and the multiplication operation to compute the product.

Problem Statement

Given an array containing odd numbers from 1 to 19, the task is to calculate the product of these odd numbers.

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Solution Steps

- Define an array ‘odd_no[]’ containing odd numbers from 1 to 19.
- Initialize a variable ‘product’ to store the cumulative product of the odd numbers.
- Use a for loop to iterate over each element in the array and multiply it with the current value of ‘product’.
- Output the calculated product of odd numbers.

Pseudo Code

1. Begin main function.

    1.1 Initialize variable 'product' to 1 to store the product of odd numbers.

    1.2 Create an array 'odd_no' containing odd numbers from 1 to 19.

    1.3 Iterate over each odd number 'i' in the array 'odd_no':

        1.3.1 Multiply the current value of 'product' by 'i' and update 'product'.

    1.4 Output the calculated product of the odd numbers to the console.

    1.5 End main function.

C ++ Code

```
#include <iostream>

int main() {
    int product = 1;
    int odd_no[] = {1, 3, 5, 7, 9, 11, 13, 15, 17, 19}; // odd numbers from 1 to 19

    for (int i : odd_no) {
        product *= i;
    }

    std::cout << "Product of odd numbers from 1 to 19: " << product << std::endl;

    return 0;
}
```

Code Explanation

- **#include <iostream>**

This line includes the necessary header file for input/output operations.

- **int main() {**

This line marks the beginning of the ‘main’ function, which is the entry point of the program.

- **int product = 1;**

This line declares and initializes an integer variable ‘product’ to store the product of the odd numbers.

- **int odd_no[] = {1, 3, 5, 7, 9, 11, 13, 15, 17, 19}; // odd numbers from 1 to 19**

This line initializes an integer array ‘odd_no’ containing odd numbers from 1 to 19.

- **for (int i : odd_no) {**

This line starts a range-based for loop, iterating over each element ‘i’ in the array ‘odd_no’.

- **product *= i;}**

This line multiplies the current value of ‘product’ by the current element ‘i’, updating the product with each iteration.

- **std::cout << "Product of odd numbers from 1 to 19: " << product << std::endl;**

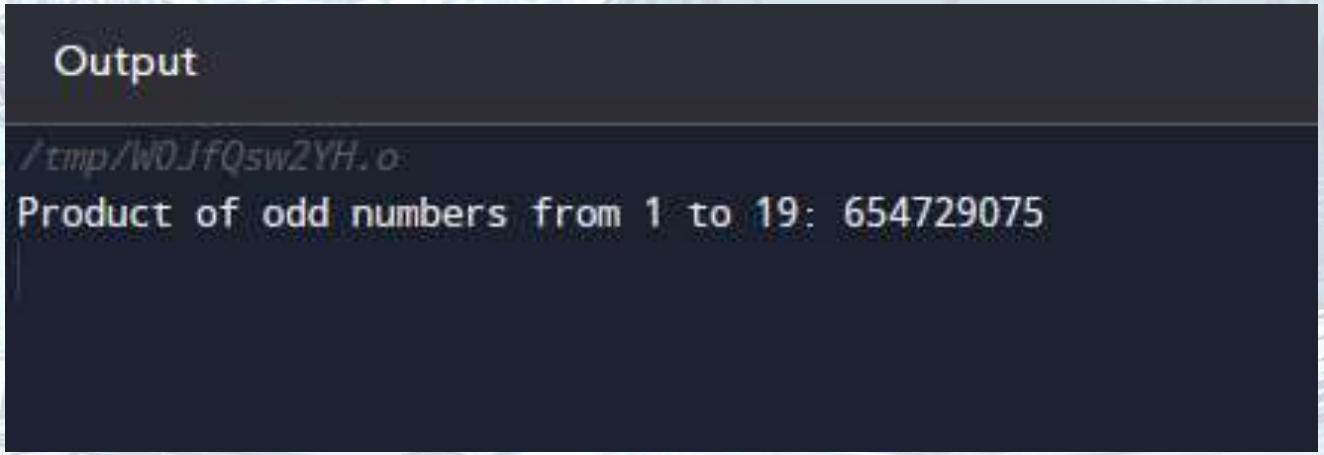
This line outputs the calculated product of the odd numbers to the standard output stream.

- **return 0;}**

This line marks the end of the ‘main’ function.

Final Answer

The final output is the product of odd numbers within the range from 1 to 19.



Additional Comments/Tips

- Ensure that the array ‘odd_no[]’ contains the correct sequence of odd numbers from 1 to 19.
- Validate the correctness of the calculated product to ensure accurate results.

Conclusion

This program demonstrates a straightforward approach to calculate the product of odd numbers within a specified range in C++, showcasing the simplicity and efficiency of using loops for such computations.